

Kay, Alison

1957. Systematics of the Cypraeidae. Thesis. University of Hawaii.

Marten & Langkavel

1871. Südsee-Conchylien: Donum Bismarckianum, p. 65. Berlin.

Melvill, James Cosmo

1888. A catalogue of the species and varieties of *Cypraea*. Mem. Proc. Manchester Soc., Ser. 4, Vol. I, No. 5, p. 212.

Schilder, F. A.

1933. Cypraeacea from Hawaii. Bernice P. Bishop Museum Occ. Papers, vol. X, no. 3.

Schilder, F. A. and M. Schilder

1938. Prodrôme of a monograph on living Cypraeidae. Proc. Mal. Soc. Lond., vol. 23, pt. 3, p. 185.

Shaw, G.

1795. Vivar, natur., Natur. Misc., 6, t. 193.

Basic Lighting for Shell Photography

by

ALFRED A. BLAKER

Scientific Photographic Laboratory, University of California, Berkeley 4, California

(Plate 12, 3 Textfigures)

This article is a summary of standard methods of lighting which will result, if properly handled, in good photographic representations of small objects in general and shells in particular. The usual requirements in this field are that there should be good visual separation from the background, detail should be apparent in all subject areas without too-distracting harsh shadows, and that surface characteristics of the individual piece should have little or no obscuring effect.

Due to space limitations it will be assumed that the reader has a general knowledge of camera use and photographic processing. It will also be assumed, as the figures indicate, that the camera used will be of the vertically mounted cut-film type.

Although there are probably as many solutions to any photographic problem as there are participating photographers, there are really just a few basic approaches. The most important of these for our purposes are the three types of lighting setups shown in text figures 1, 2, and 3. The method illustrated in fig. 1 is both simplest and of the most use. In order to separate the subject from the background the shell is placed on a glass plate which is held elevated above the white background sheet by sufficient distance to cast any subject-shadow off and out of the picture area. To accomplish all these objectives only one light source is needed, and it is placed as indicated. The harsh

single source light is then softened by the use of a translucent diffuser, usually a piece of

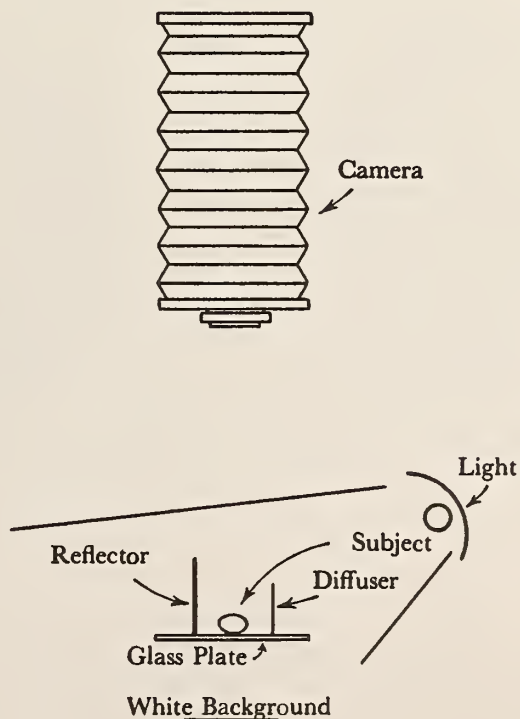


Figure 1

drafting tracing tissue curved and/or supported so that it will stand by itself between light and subject. Finally, the dark shadows now formed on the side opposite the light are illuminated and approximately balanced with a similarly curved white paper reflector. This can be made of white photo blotter, tagboard, or other fairly stiff material.

The prime virtue of the reflector-diffuser system is that it provides soft, even illumination whose directionality and balance between light and shadow areas can be altered at will to give anything from almost perfectly flat featureless lighting to contrast between light and shade equal to or exceeding the ability of the film to record it. Though the basic setup is as above, it should be remembered that all subjects do not require the same setup. In some cases, especially where surface detail or texture is particularly important, it may be desirable to omit the diffuser and use only the reflector. In this case additional separate lighting of the background is usually required to insure adequate visual separation. Many cases will require not one but several variously placed reflectors to properly show all detail. However, nearly any job of photography in this field can be adequately illuminated using this basic technique and its variants. Plate 12, figure 1 is an example of basic reflector-diffuser lighting with the reflector placed to give an intermediate degree of fill in dark areas.

To return briefly to the matter of background separation, let it be noted that only three alternatives exist for all practical purposes. The background must be white, black, or grey (in color photography grey is of course paralleled by unlimited choice of color, but here I am assuming the uses of black-and-white work). A white background is obtained by the method previously described, the background paper, being directly lit without diffusion (see diagram), receives enough additional light to assure that it will go either pure white or very close to it in the print. Deterioration of image quality is inherent in half-tone reproduction, but greatest clarity is retained with the white background. Black and grey tend to merge with the subject and result in a muddy appearance in all but the very best reproduction. True blacks are never really attained. Black backgrounds are suitable only when the subject is so light in color as to be lost against white. Here special care must be taken to insure adequate light to all edge areas, so that shadowed portions will not blend into the background. Plate 12, figure 2 is the same subject as figure 1, and is lit identically; the only difference being the background

color; notice that the shell does not clearly separate from it in any but primarily edge-lit areas. Grey backgrounds should be avoided except where the subject contains both very light and very dark areas in such combinations as to render photography impractical against either white or black. When black is to be used simply lay the subject directly on a piece of black velvet (few other materials are light-absorbent enough to print black in the final result). Subject shading of the background of course simply blends into the rest of the blackness. For grey backgrounds use any suitably grainless grey material, either directly under the subject or with the subject raised on a pedestal. Cancellation of subject shadows is left to the reflector-diffuser combination and is sometimes not complete.

With this basic lighting the major remaining difficulty is that of disturbing surface characteristics, the main one being extreme glossiness. Since a very shiny surface is essentially a mirror, the photographer will find that reflectors and diffusers, while distributing the light correctly, will leave their images apparent on the photograph. This can be seen in Plate 12, figure 4. This writer has found only one good solution, and that is to place the subject, where practical, under water or other liquid of suitable refractive index in a glass-bottomed dish. Plate 12, figure 5 was set up and lit identically to Plate 12, figure 4 - that is, with simple reflector and diffuser. The sole difference was that the subject was under water. Under these circumstances the surface of the shell was no longer a reflecting air contact. Instead, the water surface was the only shiny surface and since it was at the correct angle with respect to the light source it was rendered transparent. The result of this procedure is that all gradations in the print, from light to dark, are due to coloration in the subject matter and all such coloration shows without interference from surface effects. This is plainly not the case in Plate 12, figure 4.

For special needs there are two other basic means of getting suitable light upon the subject. The first of these is illustrated in text figure 2. With camera and subject mounted in the proper relationship a small fluorescent ringlight is introduced between as shown. Its height above the subject is adjusted to produce the desired effect and that is all there is to it. An example of this lighting is in Plate 12, figure 3. The result is an extremely soft, even light which, while throwing no shadows visible to the camera, very nicely indicates both shape and coloration. It also provides exceptionally good separation



Figure 1



Figure 2



Figure 3



Figure 4



Figure 5

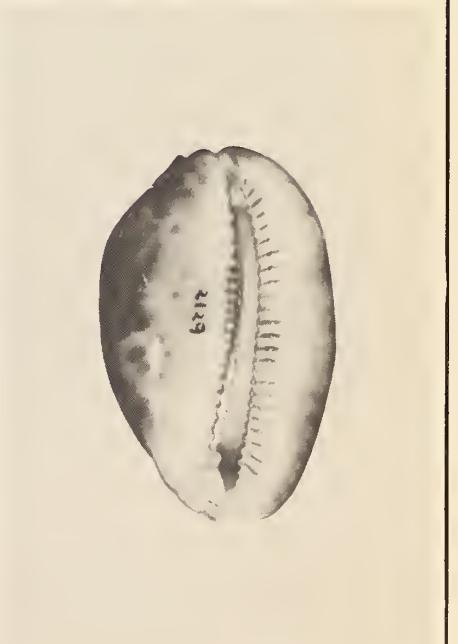


Figure 6

See Text for Explanation

